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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/663,808

09/17/2003

Denis Penninckx

Q76741

4036

23373

7590

09/20/2006

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EXAMINER

LEUNG, WAI LUN

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,808	PENNINCKX ET AL.	
	Examiner	Art Unit	
	Danny Wai Lun Leung	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09172003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed 9/17/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Reference by J.P. Jue et al., as shown on PTO-1449 dated 9/17/2003 are not legible (*pages are rotated sideways and cropped off as appear in both IFW and paper record*), and therefore have not been considered, but they have been placed in the application file.

Specification

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

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- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

4. Claims 1-9 are objected to because of the following informalities:

Limitations in parentheses, such as "(also known as the first matrix)" in claim 1, are improper. It is unclear as to whether recitations in parentheses are part of the claimed limitations.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should remain enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. However, it should be noted that the use of reference characters is to be considered as having no effect on the scope of the claims. See MPEP § 608.01(m).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Regarding claim 1, the phrase "(also know as the first matrix)", "(also know as switch ports)", "(also know as redirection ports)", etc. renders the claim indefinite because it is unclear whether the limitations within the parentheses are part of the claimed invention. See MPEP § 2173.05.

8. Regarding claim 3, the phrase "adapted to" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. The claims fail to positively recite the necessary steps and limitations as to how each inter-input-matrix communications port is adapted to receive an information carrier signal from one of said second submatrices and each inter-output-matrix communications port are being adapted to deliver an information carrier signal addressed to one of said second submatrices. See MPEP § 2106, § 2111.04 [R-3]. Also see *Minton v. Nat 'l Ass 'n of Securities Dealers, Inc.*, 336 F.3d 1373, 1381, 67 USPQ2d 1614, 1620 (Fed. Cir. 2003).

9. Regarding claims 5-7, the phrase "can include" or "preferably includes" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. The limitations are not positively recited. See MPEP § 2173.02 [R-3].

It is recommended the phase to be changed from "can include" or "preferably includes" to "includes" or "include", or have the limitations following the phase be removed from the claims.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-4, 6, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Number 7,058,303 to Yamada et al.

Regarding to claim 1, Yamada discloses an optical cross-connect unit of multi-granular architecture (*fig 8*) comprising:

a first stage (*7-1, fig 8*) for switching wavelength bands and comprising:

a [first] switching optical matrix (*7-1 ... 7-M, fig 8*) for switching wavelength bands and having first input [switch] ports (*ports for wavelength group 6-1, fig 8*) and first output [switch] ports (*ports connected to fiber 8-1, fig 8*) and second input [redirection] ports (*ports on lower right of matrix 7-1*) and second output [redirection] ports (*ports for signals 9-1, fig 8*), demultiplexer means (*5, fig 8*) for demultiplexing wavelength bands and having p groups of n outputs associated with n distinct wavelength bands (*M wavelength groups of M' distinct wavelength bands*), each output being connected to a distinct input switch port of the first matrix (*co 7, ln 7-22*), multiplexer means (*13, fig 8*) for multiplexing wavelength bands and having p groups of n inputs each connected to a distinct output switch port of the first matrix (*col 7, ln 33-42*),

a second stage (*33-1-1 ... 33-1-M', fig 8*) for switching wavelengths and comprising:

a [second] switching matrix for switching wavelengths (33-1-1...33-1-M', fig 8) and having first input [switch] ports (32-1-1, fig 8) and first output [switch] ports (34-1-1, fig 8), demultiplexer means (31-1, fig 8) for demultiplexing wavelengths and each input of which is connected to a distinct output redirection port of the first [switching optical] matrix and each output of which is connected to a distinct input switch port of the second [switching] matrix (col 10, ln 30-40), and multiplexer means (39-1-1, fig 8) for multiplexing wavelengths and each input of which is connected to a distinct output switch port of the second [switching] matrix and each output of which is connected to a distinct input redirection port of the first [switching optical] matrix (col 10, ln 51-60), which cross-connect unit is characterized in that the first [switching optical] matrix includes a series of first optical switching submatrices disposed in parallel (*series of submatrices such as 7-1, 7-2...7-M are connected in parallel, col 7, ln 14-22, in a way similar to 37-1-1 as being shown in fig 8*) and the second [switching] matrix includes a series of second switching submatrices disposed in parallel (*series of submatrices 33-1-1, 33-1-2...33-1-M' are connected in parallel, as shown in fig 8; col 10, ln 30-49*).

As to claim 2, Yamada further discloses wherein said first submatrices include n first submatrices, each dedicated to a distinct one of said n wavelength bands (*each of the 7-1...7-M submatrices are dedicated to M wavelength groups*) and including p of said input switch ports and p of said output switch ports, and at least two of the first submatrices, each of which includes at least one distinct input redirection port and at least one distinct output redirection port, and each of which is coupled to a distinct one of said second submatrices (*as illustrated in fig 8; also described in col 7, ln 7-32*).

As to claim 3, Yamada further discloses wherein each of at least two of the second submatrices includes at least one inter-input-matrix communications port (35-1-1, fig 8) and at least one inter-output-matrix communications port (lower left of 33-1-1...33-1-M, fig 8), each inter-input-matrix communications port being adapted to receive an information carrier signal from one of said second submatrices and each inter-output-matrix communications port being adapted to deliver an information carrier signal addressed to one of said second submatrices (col 10, ln 31-64).

As to claim 4, Yamada further discloses the cross-connect unit in accordance to claim 3 further includes intermatrix switching means (37-1-1..., fig 8) coupling all of said inter-input-matrix communications ports to all of said inter-output-matrix communications ports (col 10, ln 41-60).

As to claim 6, Yamada further discloses the cross-connect unit in accordance to claim 4, wherein the information carrier signals are optical signals and the intermatrix switching means can include wavelength conversion means (col 9, ln 50-56).

As to claim 8, Yamada further discloses wherein said second submatrices are electrical (electric switch 22, fig 7; col 9, ln 57-65); and optical-electrical converters (receivers 21, fig 7) and electrical-optical converters (transmitters 23, fig 7) are respectively disposed at least at the level of the input switch ports and at least at the level of the output switch ports of said second submatrices (col 9, ln 57-65).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Applicant may overcome the applied art either by a showing under 37 CFR 1.132 that the invention disclosed therein was derived from the invention of this application, and is therefore, not the invention "by another," or by antedating the applied art under 37 CFR 1.131.

14. Claims 5 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 7,058,303 to Yamada et al. as applied to claims 4 and 1 above, in view of US Patent Number 5,438,566 to Masetti et al.

Regarding to claim 5, Yamada discloses the cross-connect unit in accordance to claim 4 as discussed above. Yamada further teaches wherein the information carrier signals are optical signals (*col 7, ln 7-14*). Yamada does not disclose expressly wherein the cross-connect unit can include an optical concentrator for concentrating optical signals coupling all the inter-output-matrix communications ports to the inputs of the intermatrix switching means and an optical deconcentrator for deconcentrating optical signals coupling the outputs of the intermatrix communications means to all the inter-input-matrix communications ports.

Masetti, from the same field of endeavor, teaches a cross-connect unit that can include an optical concentrator (*CS, fig 2*) for concentrating optical signals for coupling all the communications ports of a matrix (*switching plane P1...PR, fig 2*) to the inputs of a switching means (*switching means at the next stage such as that as shown in fig 4*) and an optical deconcentrator (*DS, fig 2*) for deconcentrating optical signals coupling the outputs of an intermatrix communications means (*switching means at the previous stage such as that as shown in fig 4*) to all the inter-input-matrix communications ports (*switching ports 1...M on the left of each of switching plane P1...PR, fig 2*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to include an optical concentrator for concentrating optical signals for coupling all the communications ports of a matrix to the inputs of Yamada's switching means and an optical deconcentrator for deconcentrating optical signals coupling the outputs of Yamada's intermatrix communications means to all the inter-input-matrix communications ports as taught by Masetti. The motivation for doing so would have been to enable faster switching rate by using concentrator and deconcentrators in a switching system as suggested by Masetti.

Claim 9 is rejected for the same reasons as stated above regarding claim 5, because same reasoning could be applied to suggest that Masetti's concentrators and deconcentrators can be applied to Yamada's second submatrices in the same manner that it is applied to the first set of matrix as discussed above regarding claim 5. It would have been obvious to combine Yamada and Masetti for the same reason as stated regarding claim 5.

15. Claim 7 is rejected under 35 U.S.C. 102(e) as anticipated by US Patent Number 7,058,303 to Yamada et al. or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent Number 7,058,303 to Yamada et al., as applied to claim 1 above, in view of US Patent Number 6,792,207 to Iannone et al.

Regarding to claim 7, Yamada discloses the cross-connect unit in accordance to claim 1 as discussed above. Yamada further discloses that the cross-connect unit includes wavelength conversion means (*wavelength converter 23, fig 7; col 9, ln 51-64*), said means being disposed between output switch ports of the second submatrices (*output ports of switch 22, as shown in fig 7*) and the wavelength multiplexer means (*12-1, fig 7*).

As it is best understood in view of the 112 indefiniteness problems as discussed above, Yamada does not disclose expressly wherein the cross-connect unit preferably includes 3R regenerators when the information carrier signals are optical digital signals. Iannone, from the same field of endeavor, teaches a cross-connect unit includes wavelength conversion means and preferably includes 3R regenerators (*225, 230, 240, 245, fig 2*) when the information carrier signals are optical digital signals (*col 2, ln 2-23*), said means being disposed between output switch ports of switching matrices (*235, fig 2*) and wavelength multiplexer means (*250, 255, fig 2*). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to use 3R regenerators when the information carrier signals are optical digital signals as wavelength conversion means onto Yamada's system as taught by Iannone. The motivation for doing so would have been to make large network opaque with respect to carrier wavelengths, in order to improve phase performance, amplification, and switching in the optical domain as suggested by Iannone (*col 2, ln 10-15*).

Conclusion

16. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Wai Lun Leung whose telephone number is (571) 272-5504. The examiner can normally be reached on 9:30am-7:00pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DWL
September 13, 2006


KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER